

No Calculator1. Convert 150° to radian measure.2. Convert $\frac{4\pi}{3}$ to degree measure.3. Find the exact value of the following. Sketch the angle (in the correct quadrant) and label the special Δ .

a. $\sin\left(-\frac{7\pi}{6}\right)$

b. $\sec\frac{7\pi}{4}$

c. $\cos\frac{80\pi}{3}$

d. $\csc 10\pi$

e. $\cot\frac{19\pi}{2}$

f. $\csc\left(-\frac{21\pi}{4}\right)$

4. Graph one cycle for each of the following and find the amplitude, vertical shift, period and phase shift.

a. $y = -3\csc 2\left(x + \frac{\pi}{3}\right) + 1$

Amplitude:

Vertical Shift:

Period:

Phase Shift:

b. $y = 5\tan\left(2x + \frac{\pi}{4}\right) - 2$

Amplitude:

Vertical Shift:

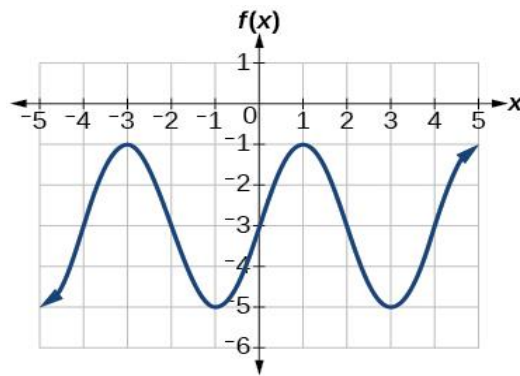
Period:

Phase Shift:

5. Name the following trig function using sine and cosine.

Sine:

Cosine:



6. Solve for all possible values within $[0, 2\pi]$. Show labeled triangles in correct quadrants.

a. $\sec \theta = \left(-\frac{2\sqrt{3}}{3}\right)$

b. $\cot \theta = -\sqrt{3}$

7. The hottest day of the year in Santiago, Chile, on average, is January 7, when the average high temperature is 29°C . (Jan. 7 is in the summer in Santiago). The coolest day of the year has an average temperature of 14°C . Temperature over time varies sinusoidally. Use 365 days as the length of a year.

a. Draw one full cycle of the graph. Label.

b. Write an equation of the sinusoidal function.

8. Solve the following

a. $25^{7x+22} = 125$

b. $\log_2 x - \log_2 (x-3) = 3$

9. Write $P(x) = x^3 - 1000$ as the product of linear factors

10. What are the roots of the polynomial $P(x) = x^4 - 6x^3 - 12x^2 + 30x + 35$